Amendments to the drawings:

The attached sheets of drawings include changes to Figures 1-5 and replace the original drawing sheets. In the replacement sheets, solid black shading has been removed.

REMARKS

The Examiner's Action dated November 3, 2005, has been received, and its contents carefully noted.

In response to the objections of the claims, the pending claims have been cancelled and replaced by new claims 18-32, which have been drafted to fully conform to the requirements of U.S. practice. Accordingly, it is requested that the objections to the claims be reconsidered and withdrawn.

The rejections presented in Sections 2, 4 and 5 of the Action are traversed for the reason that the newly submitted claims, and particularly independent claims 18 and 28, define subject matter that is not suggested by any reasonable combination of the teachings of the applied references.

In order to overcome these rejections, particularly in relation to prior art documents Nacken (GB 267 462), Kranbuehl (US 4,710,550) and MacLean (US 3,864,626), new independent claims 18 and 28 specify that the reference material has a dielectric constant which is smaller than 15 and larger than that of the gemstone to be qualified. Support for this recitation will be found in original claim 2 and at page 7, line 4 of the specification.

As stated in the action, neither Nacken nor Kranbuehl discloses that in order to measure a reference capacitance, a reference material is used with a dielectric constant than is larger than that of the gemstone to be qualified.

Furthermore, neither of those references discloses the use of a reference material that has a dielectric constant that is smaller than 15 and larger than that of the gemstone to be qualified.

As emphasized previously, when a gemstone is placed in the stray field of the capacitor, the measured capacitance thereof is mainly influenced by the electrical conductivity of the gemstone and is influenced only to a very limited extent by the dielectric constant of the gemstone (see description at page 5, lines 4-10 of the specification). Consequently, the influence of the difference in the dielectric constant of different gemstones on the capacitance of the capacitive probe can be neglected when compared to the influence of the difference in the electrical conductivity of the gemstones.

As such, the method and device of the present invention allow to distinguish gemstones having electrical conductive properties on the surface or embedded in the stones from gemstones that are not electrically conductive.

Therefore, the measured capacitance of the capacitor when part of the gemstone is in the stray electric field is compared to a reference capacitance of the capacitor when an electrically nonconductive reference material is in the stray electric field.

In the present invention, it is important that the reference material is electrically nonconductive. This has also been illustrated in the present specification on page 6, beginning at line 30, and figure 3 with respect to the control of the thickness of the reference material. The thickness of the reference material is selected such that the electrical stray field is entirely situated in the reference material and the reference capacitance is not changed when a conductive material is placed on top of the reference material. Hence, no electrical conductive material should be present in the reference material within the measuring range of the capacitor.

In order to clearly limit the new independent claims in this respect, the feature that the reference material has a dielectric constant which is smaller than 15 has been added.

An example mentioned on page 8, lines 7-9, of the specification indicates that the present method may be used to distinguish a pure diamond stone from a gemstone with a core of moissanite coated with diamond. It is clear that the

properties of the exterior of both gemstones are identical, while the properties of the core are different. In particular, the dielectric constant of moissanite, i.e. about 9.7, is larger than the dielectric constant of diamond, i.e. about 5.7.

According to the present invention, a gemstone with a moissanite core will be measured as a gemstone with electrical conductivity since the measured capacitance of the capacitor comprising part of the gemstone will be larger than the reference capacitance, which is the measured capacitance of the capacitor comprising a reference material that has a dielectric constant smaller than 15 and larger than that of the gemstone to be qualified, i.e. that of diamond.

However, the present invention also includes comparing the measured capacitance with a reference capacitance of a capacitor influenced by an electrically nonconductive reference material that has a dielectric constant larger than that of diamond, e.g. larger than 9.7 as stated at page 3, lines 3-4 of the specification, but smaller than 15. This is useful in order to be able to qualify electrically nonconductive gemstones having a dielectric constant that is smaller that 9.7 but larger that that of diamond.

MacLean discloses a method and apparatus for non-destructively evaluating physical properties of materials, i.e. semi-conductive or electrically conductive fibers (abstract; column 2, lines 44-45). The system of MacLean uses an electrolytic cell with three electrodes immersed in an electrolyte (column 3, lines 17-22). The measuring electrodes are formed by the fiber to be tested, i.e. a carbon fiber, and a counter electrode (column 3, lines 41-46). A third electrode, i.e. a reference electrode, is used to maintain a constant potential between the counter electrode and the electrolyte (column 3, lines 46-51). Hence, the conductive properties of the carbon fiber are used in order to measure the capacitance of a capacitor formed by the conductive fiber and the counter electrode.

According to the method of the present invention, the gemstone to be measured and/or the corresponding reference material is not an electrode of the capacitor. The reference material in new claims 18 and 28 has a dielectric constant which is smaller than 15 and larger than that of the gemstone to be qualified. This requires that the reference material be electrically nonconductive.

Consequently, the cited prior art, in particular Nacken in view of Kranbuehl and MacLean, fails to teach the combination of features of new claims 18 and 28, in particular

a method and device for measuring gemstones where a reference material is used made from electrically nonconductive material with a dielectric constant smaller than 15 and larger than that of the gemstone to be qualified.

In view of the foregoing, it is requested that all of the objections and rejections of record be reconsidered and withdrawn, that the pending claims be allowed and that the application be found in allowable condition.

If the above amendment should not now place the application in condition for allowance, the Examiner is invited to call undersigned counsel to resolve any remaining issues.

Respectfully submitted,

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